AUTHOR: ULANOV,G.M. PA - 2100

TITLE: The Covariance in Approximation to ε in Linear, Combined, Automatically Controlled Systems. (Russian)

PERIODICAL Doklady Akademii Nauk SSSR, 1957, Vol 112, Nr 2, pp 253-256 (U.S.S.R.)
Received: 3 / 1957 Reviewed: 4 / 1957

ABSTRACT: The present work investigates this covariance in approximation to ε which is due to the approximate satisfaction of the conditions of absolute covariance. A combined automatically controlled system, the structural scheme of which is illustrated by a drawing, is investigated.
$x(t)$ and $x_{cov}(t)$ denote the processes which are due to a disturbance $f(t)$ in an automatically controllable system in the case of a control based on the system of deviation and/or on the system of deviation and disturbance respectively:
$x(t)=L^{-1}\left\{(N_1/\Delta N)f(s)\right\}$, $x_{cov}(t)=L^{-}\left\{((N_1-N_2)/\Delta N)\right\}f(s)$.
Here Δ N denotes the characteristic polynomial of the systems, N_1 and N_2 the corresponding polynomials with the order k and l, L - the LAPLACE-like representation of the inverse transformation, f(s) - the LAPLACE-like representation of the disturbance f(t): it applies that $N_1 = b_o + b_1 s + b_2 s^2 + \ldots + b_k s^k$

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The Covariance in Approximation to in Linear, Combined, Automatically Controlled Systems. (Russian)

and $N_2 = \bar{a}_0 + \bar{a}_1 s + \bar{a}_2 s + \ldots + \bar{a}_1 s^1$. Similar to the conditions of absolute covariance, the dependence of the minimizing of $x_{cov}(t)$ on the coefficients $\bar{a}_i$ or $a_i = b_i - \bar{a}_i$ (b_i is assumed) must be determined. By using the theorem concerning the behavior of the functions with respect to the expression $x_{cov}(t)$ the following correlation is found between the processes in the case of control according to the principle of deflection and according to the principle of deflection and disturbance: $x_{cov}(t) = \int_0^t \Phi(\tau)x(t - \tau)d\tau$. This correlation is written down also in a different form. The coefficients occurring in this connection are computed immediately from the parameters of the open and of the closed cycle of the system. In the case of the combined systems for automatic control these coefficients characterize the measure of covariance of these systems. Several peculiarities of the various systems are individually mentioned.

Next, the covariance in approximation to $\mathcal{E}$ of the linear

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The Covariance in Approximation to in Linear, Combined, Automatically Controlled Systems. (Russian)

systems investigated here are studied within a finite interval of time t ($0 < t < t_1$). The "pulse function" of the system can be represented in form of a polynomial with respect to t without a free term: $k(t) = \sum_{n=1}^{\infty} \alpha_n t^n$. The definite expression for $x_{oov}(t)$ is explicitly given and developed in series according to t.

The conditions of covariance in approximation to ξ characterize the measure of undisturbedness of the system in dependence on the efficiency of coupling and the sufficiently small number of necessary effects. The conditions found here extend the range of applicability of the ideas of covariance in combined systems for automatic control.

ASSOCIATION: Not given
PRESENTED BY:
SUBMITTED:
AVAILABLE: Library of Congress

Card 3/3

ULANOV, G.M.

AUTHOR: PETROV,V.V., ULANOV,G.M. PA - 2106

TITLE: The Similarity of Sliding, Vibrational and Optimum Conditions of Motion in Servomechanisms (Russian).

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol 112, Nr 3, pp 394-397 (U.S.S.R.)

Received: 3 / 1957 Reviewed: 4 / 1957

ABSTRACT: The present work deals with the similarity of sliding, vibrational, and optimum kinds of operation in servomechanisms.It is shown that with the aid of these modes of operation the optimum kind of motion of servomechanisms can be realized. By vibration-like behavior of the servomechanism its motion in the case of the presence of a vebration contour with control mechanism (relay) is here understood. By instantaneous kind of operation an instantaneous transition process is understood, which, under existing circumstances, develope within the shortest possible time. The similarity between these three kinds of operation consists in a nearly periodic motion of the relay with a frequenca depending on the parameters of the servomechanism. Also the shape of couplings and the intensity of disturbances (detuning) plays a part.

A drawing illustrates the structural schemata of the system of automatc control for the classical problem as well as the

The Similarity of Sliding, vibrational, and optimum conditions of Motion in Servomechanisms.

structural schemata of a servomechanism with velocity-dependent and firm back-coupling and of a servomechanism with two kinds of oscillatory circuits. The oscillation equations of the various schematas are given.

Some conclusions:

1) In the case of an indefinite relay function Φ the system continuous to move in accordance with a certain diviation from the band, which, however, never exceeds the limit of the path, further within the band $F = \sigma_i$ with variable decreasing frequency of the switching device. The steady state of the system is a process of self-oscillation.

2)In the case of definite characteristic Φ the system also moves further in accordance with a certain deviation along the switching-over line $F = 0$. If Φ is the function of a linear argument, the motion of the system is linearized within the domain along the switching-over line. Its phase-trajectory is then a straight line determined by argument F, and the order of the equations describing the system is diminished by at least 1.

3) In the case of a nonlinear argument Φ, in which case $F(y,x) = \psi_1(y,x)$ with $\psi_1(0,0) = 0$ applies, the slizing manner of motion is identical with the optimum. The optimum process

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The Similarity of Sliding, Vibrational, and Optimum Conditions of Motion in Servomechanisms.

may therefore be considered to be a limiting- and special case of the sliding operation with the switching-over frequency of zero. Therefore optimum processes can be realized with a definite degree of accuracy by a corresponding selection ot the parameters of the servomechanisms.
(3 illustrations).

ASSOCIATION: Not given
PRESENTED BY: SOBOLEV,S.L., Member of the Academy.
SUBMITTED:
AVAILABLE: Library of Congress.

Card 3/3

ULANOV, G. M.

AUTHOR: ULANOV, G.M. PA - 2646

TITLE: On a Generalization of the Deflection accumulation Theory and its Use for Determining Autooscillations in Generators. (Ob odnom obobshchenii teorii nakopleniya otkloneniy i prilozheniye eye k opredeleniyu avtokolebaniy v generatorakh, Russian).

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol 113, Nr 1, pp 54 - 57 (U.S.S.R.)
Received: 5 / 1957 Reviewed: 6 / 1957

ABSTRACT: The present work computes the accumulated deflections of compound functions of a regulatable quantity on the assumption that the disturbance f(t) is restricted with respect to the modulus or that the modulus of any disturbance is restricted. Furthermore, a graphical analytical method for the construction of the diagram of the accumulation of deflections is worked out. The steady linear system of automatic control may be described by the following equation:

$\Phi(s)\, L\{x(t)\} = g(s) L\{f(t)\}$. Here $\Phi(s)$ and $g(s)$ denote polynomials with respect to s (s denotes the Laplace operator), $L\{x(t)\}$ and $L\{f(t)\}$ - Laplace transformations of x(t) and f(t) respectively.
The author examines the problem of the accumulation of functions of a regulatable quantity of the type

$$X(t) = a_0 x(t) + a_1 \dot{x}(t) + \ldots + a_k x^{(k)}(t) + b_0 \int_0^t x(t)dt + \ldots + \int_0^t \cdots \int_0^t x\,dt, \quad k < m - n$$

(r-fold integral)

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On a Generalization of the Deflection Accumulation Theory and its Use for Determining Autooscillations in Generators PA - 2646

for the case in which a disturbance f(t) 1 restricted accoring to the modulus ats upon the system mentioned above. The Laplace transformation of X(t) is written down. The accumulation of the function X(t) for the restricted modulus f(t) is determined by $|f(t - \tau)| - 1$, sign H(t) " signf(t - τ) for the entire time interval 0 - t. A formula is also given for the maximum accumulated value of X(t).

The diagram of the accumulation of deflections $X_{max}(t)$ is easily constructed on the basis of the "summarized transition function" H(t) the curve found is in this case monotonous. Next, a common feature shared by self oscillations and the accumulation process of deflections in certain generators is shown, and the amplitude and frequency of the resulting oscillations is determined on the basis of the analysis of the accumulation process of deflections.

ASSOCIATION: Institute for Automatics and Telemechanics of the Academy of Science of the U.S.S.R.

PRESENTED BY: S.L.Sobolev, Member of the Academy

SUBMITTED: 25.7.1956

AVAILABLE: Library of Congress.

Card 2/2

ILANOV, G.M.

28(1) P.2 PHASE I BOOK EXPLOITATION SOV/3317

Moscow. Vyssheye tekhnicheskoye uchilishche. Kafedry "Avtomatika i telemekhanika"

Sistemy avtomaticheskogo regulirovaniya i upravleniya; nekotoryye voprosy teorii i tekhniki (Automatic Regulating and Control Systems; Some Problems in Theory and Technology) Moscow, Mashgiz, 1959. 166 p. (Series: Its Trudy, sbornik no. 97) 7,600 copies printed.

Ed.: V.K. Titov, Candidate of Technical Sciences; Tech. Ed.: Z.I. Chernova; Managing Ed. for Literature on Machine Building and Instrument Making (Mashgiz): N.V. Pokrovskiy, Engineer.

PURPOSE: The book is intended for teachers in schools of higher education, and for engineers and technicians engaged in problems of automation.

COVERAGE: This collection contains articles on the theory and technique of automatic regulation and control. The problems discussed concern calculation of optimum parameters of low-power servomechanisms, correction of a-c systems and systems of automatic regulation with a delay unit, and the construction of self-adjusting a-c systems. Several methods of improving the dynamic properties of servomechanisms, and methods of approximate investigation of pulse servo-

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mechanisms, are also explained. Some considerations regarding possible ways of automating butt welding in a random direction are presented. The authors of this collection are all instructors in the department of "Automation and Remote Control" at MVTU imeni Bauman. The articles are based on scientific research work conducted by the department during the last five years. Some personalities are mentioned in each article. References are given after each article.

TABLE OF CONTENTS:

A.J. Kukhtenko and other Ukrainian scientists contributed much to the advancement of the theory and methods of developing combined systems of automatic regulation and control. A tendency to unite the problems of combined systems and of self-adjusting systems appears in the works of V.V. Solodovnikov and A.M. Batkov (1956). The author summarizes the basic ideas of the Soviet scientists on the above problems.

Bibliography 14

Shramko, L.S., Candidate of Technical Sciences. Problem of Self-adjusting Systems 15

The author investigates some a-c systems which develop an error signal of the type $U_\epsilon(t)\cos\omega_0 t$. This signal, amplified and converted accordingly, is used for the control of certain actuating units (frequently, two-phase induction motors). There are two ways of converting this error signal:

1) with demodulation preceding the conversion of the a-c signal;
2) without intermediate demodulation

The author considers systems of the second type the more advantageous because of the absence of additional demodulating and modulating devices.

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JP/fal
4-8-60

ULANOV, G.M.

PHASE I BOOK EXPLOITATION SOV/4526

Soveshchaniye po teorii invariantnosti i yeye primeneniyu v avtomaticheskikh ustroystvakh. Kiyev, 1958

Teoriya invariantnosti i yeye primeneniye v avtomaticheskikh ustroystvakh; trudy soveshchaniya (Theory of Invariance and Its Applications to Automatic Devices; Transactions of the Conference Oct. 16-20, 1958) Moscow, 1959. 381 p. No. of copies printed not given.

Sponsoring Agency: Akademiya nauk Ukrainskoy SSR. Otdeleniye tekhnicheskikh nauk.

Resp. Ed.: V.S. Kulebakin, Academician; Editorial Commission: V.A. Bodner, Doctor of Technical Sciences, A.G. Ivakhnenko, Doctor of Technical Sciences, A.Yu. Ishlinskiy, Academician, Academy of Sciences UkrSSR, N.A. Kachanova, Candidate of Technical Sciences, P.I. Kuznetsov, Doctor of Physics and Mathematics, A.I. Kukhtenko, Doctor of Technical Sciences, B.N. Petrov, Corresponding Member, Academy of Sciences USSR, Ye.P. Popov, Doctor of Technical Sciences, G.M. Ulanov, Doctor of Technical Sciences, K.K. Khrenov, Academician, Academy of Sciences UkrSSR, P.I. Chinayev, Candidate of Technical Sciences, and N.M. Chumakov, Candidate of Technical Sciences; Tech. Ed.: G.V. Kruglov.

PURPOSE: This collection of papers is intended for engineers and other specialists working in various fields of automation.

COVERAGE: The collection includes reports and papers presented at the Conference on the Theory of Invariance and Its Applications to Automatic Devices, which was called by the Otdeleniye tekhnicheskikh nauk (Department of Technical Sciences) and the Institut elektrotekhniki (Institute of Electrical Engineering) of the Academy of Sciences of the Ukraine and convened in Kiyev October 16 - 20, 1958. The papers presented are concerned with high-quality automatic control systems designed on the basis of compensating for the effects of disturbances or maintaining the invariance of the quality to be regulated with respect to the disturbances acting on the system. The reports treat the physical and mathematical foundations of invariance in automatic control systems; they also consider methods for designing and calculating invariant systems and problems connected with specific cases of practical applications of compensation in various automatic systems. On the basis of these reports it was established by the Conference that, by utilization of the conditions of compensation and the principle of invariance, it is possible to produce automatic systems and various arrangements which are more perfect from the viewpoint of quality of the regulation and control process, stability, simplicity of construction, and reliability of operation. The following members of the Kiyev Seminar on Automatic Control are mentioned as organizers of the conference: A.I. Kukhtenko, A.G. Ivakhnenko, Yu.G. Korailov, O.M. Kryzhanovskiy, N.M. Chumakov, N.A. Kachanova, and P.I. Chinayev. References accompany each article.

~~Card 1/6~~

8

ALEKPEROV, V.P., inzh.; ATOVMYAN, I.O., inzh.; ZUYEV, V.I., inzh.; KAVUN, Ye.S., kand.tekhn.nauk; KOGAN, B.Ya., kand.tekhn.nauk; KOPAY-GORA, P.N., kand.tekhn.nauk; KULAKOV, A.A., inzh.; LEBEDEV, A.N., kand. tekhn.nauk; PAPERNOV, A.A., doktor tekhn.nauk; PEL'POR, D.S., doktor tekhn.nauk; PLOTNIKOV, V.N., kand.tekhn.nauk; RUZSKIY, Yu.Ye., kand.tekhn.nauk; SOLODOVNIKOV, V.V., doktor tekhn.nauk; TOPCHEYEV, Yu.I., kand.tekhn.nauk; ULANOV, G.M., kand.tekhn.nauk; SHRAMKO, L.S., kand.tekhn.nauk; DOBROGURSKIY, S.O., doktor tekhn. nauk, retsenzent; KAZAKOV, V.A., kand.tekhn.nauk, retsenzent; PETROV, V.V., kand.tekhn.nauk, retsenzent; KHAVKIN, G.A., inzh., retsenzent; SOLODOVNIKOV, V.V., prof., doktor tekhn.nauk, red.; VITENBERG, I.M., kand.tekhn.nauk, nauchnyy red.; MOLDAVER, A.I., kand.tekhn.nauk, nauchnyy red.; KHETAGUROV, Ya.A., kand.tekhn.nauk, nauchnyy red.; POLYAKOV, G.F., red.izd-va; KONOVALOV, G.M., red. izd-va; SOKOLOVA, T.F., tekhn.red.

[Fundamentals of automatic control] Osnovy avtomaticheskogo regulirovaniia. Vol.2. [Elements of automatic control systems] Elementy sistem avtomaticheskogo regulirovaniia. Pt 2. [Compensating elements and computer components] Korrektiruiushchie elementy i elementy vychislitel'nykh mashin. Moskva, Gos.nauchno-tekhn. izd-vo mashinostroit.lit-ry. 1959. 453 p. (MIRA 12:4)
(Automatic control) (Electronic apparatus and appliances) (Electronic calculating machines)

Elementy sistem avtomaticheskogo regulirovaniya. ch. 1: Chuvstvitel'nyye usilitel'nyye i ispolnitel'nyye elementy (Elements of Automatic Control Systems. pt. 1: Sensing, Amplifying and Control Elements) Moscow, Mashgiz, 1959. 722 p. (Series: Osnovy avtomaticheskogo regulirovaniya, t 2) Errata slip inserted. 13,000 copies printed.

Reviewers: F. F. Galteyev, Candidate of Technical Sciences, V. A. Karesev, Doctor of Technical Sciences, P. P. Klobukov, Candidate of Technical Sciences, V. V. Petrov, Candidate of Technical Sciences, Yu. D. Ragozin, Candidate of Technical Sciences, Yu. R. Reyngol'd, Engineer, B. A. Ryabov, Doctor of Technical Sciences, B.D. Sadovskiy, Candidate of Technical Sciences, A. G. Saybel', Candidate of Technical Sciences, and A. A. Shevyakov, Candidate of Technical Sciences; Scientific Eds.: I. M. Vitenberg, Candidate of Technical Sciences, A. I. Moldaver, Candidate of Technical Sciences, and Yu. Ye. Ruzskiy, Candidate of Technical Sciences; Ed. of Series: V. V. Solodovnikov, Doctor of Technical Sciences, Professor; Eds. of Publishing House: G. F. Polyakov, A. G. Akimova, and G. M. Konovalov; Tech. Eds.: A. Ya. Tikhanov and T. F. Sokolova; Managing Ed. for Literature on Machine Building and Instrument Construction (Mashgiz): N. V. Pokrovskiy, Engineer.

PURPOSE: This book is intended for engineering and scientific personnel and for instructors of vtuzes concerned with problems of automatic control.

COVERAGE: The authors explain the principle of operation of automatic control elements and servomechanisms. They also discuss typical automatic control circuits and present equations of motion and static and dynamic characteristics of automatic control elements. They describe sensing elements, amplifiers, control elements and transducers. The book contains Sections I, II, and III of Part 1, Volume II, "Principles of Automatic Control." The following persons participated in writing the present work: D. A. Braslavskiy, Candidate of Technical Sciences, paragraph 4 of Chapter III and paragraphs 1-8 and 14 of Chapter IV; L. S. Gol'dfarb, Doctor of Technical Sciences, paragraphs 1, 2, 6 and 7 of Chapter I; A. I. Guzenko, Candidate of Technical Sciences, paragraph 1 of Chapter VIII; K. Ye. Dmitriyev, Candidate of Technical Sciences, paragraph 2 of Chapter XIII; V. A. Kalashnikov, Engineer, Chapter XIV; P. P. Klobukov, Candidate of Technical Sciences, paragraphs 2 and 3 of Chapter VIII; P. F. Klubnikin, Candidate of Technical Sciences, Chapter XII; I. M. Krassov, Candidate of Technical Sciences, paragraph 1 of Chapter XIII, and Chapter XIV; D. S. Pel'por, Doctor of Technical Sciences, paragraphs 1-3of Chapter III; V. V. Petrov, Candidate of Technical Sciences, paragraph 1 of Chapter XIII, and Chapter XIV; M. A. Rozenblat, Doctor of Technical Sciences, Chapter VII; Yu. Ye. Ruzskiy, Candidate of Technical Sciences, paragraphs 1, 3-5 and 8-10 of Chapter 1, paragraphs 2-5, 12, 13 and 17 of Chapter II, paragraph 3 of Chapter XIII, and Chapter IX; B. D. Sadovskiy, Candidate of Technical Sciences, paragraphs 1 and 2 ofChapter X; A. A. Sokolov, Candidate of Technical Sciences, Chapter VI; V.K. Titov, Candidate of Technical Sciences, paragraphs 9-13 of Chapter IV, paragraph 4 of Chapter X, and Chapter XI; G. M. Ulanov, Candidate of Technical Sciences, paragraph 1 of Chapter II; Ye. V. Filipchuk, Candidate of Technical Sciences, paragraphs 6-11, 14-16 and 18-29 of Chapter II; A. Ye. Kharybin, Candidate of Technical Sciences, Chapter V; and V. K. Khokhlov, Candidate of Technical Sciences, paragraph 1 of Chapter IX and paragraph 1 of Chapter XIII. References appear at the end of each chapter.

TABLE OF CONTENTS:

ULANOV, G.M.

BRASLAVSKIY, D.A., kand.tekhn.nauk; GOL'DFARB, L.S., doktor tekhn.nauk; GUZENKO, A.I., kand.tekhn.nauk; DMITRIYEV, K.Ye., kand.tekhn.nauk; KALASHNIKOV, V.A., inzh.; KLOBUKOV, P.P., kand.tekhn.nauk; KLUBNIKIN, P.F., kand.tekhn.nauk; KRASSOV, I.M., kand.tekhn.nauk; PEL'POR, D.S., doktor tekhn.nauk; PETROV, V.V., kand.tekhn.nauk; ROZENBLAT, M.A., doktor tekhn.nauk; RUZSKIY, Yu.Ye., kand.tekhn.nauk; SADOVSKIY, B.D., kand.tekhn.nauk; SOKOLOV, A.A., kand.tekhn.nauk; TITOV, V.K., kand.tekhn.nauk; ULANOV, G.M., kand.tekhn.nauk; FILIPCHUK, Ye.V., kand.tekhn.nauk; KHARYBIN, A.Ye., kand.tekhn.nauk; KHOKHLOV, V.A., kand.tekhn.nauk; GALTSYEV, F.F., kand.tekhn.nauk, retsenzent; KARASEV, V.A., doktor tekhn.nauk, retsenzent; RAGOZIN, Yu.D., kand.tekhn.nauk, retsenzent; REYNGOL'D, Yu.R., inzh., retsenzent; RYABOV, B.A., doktor tekhn.nauk, retsenzent; SAYBEL', A.G., kand.tekhn.nauk, retsenzent; SHEVYAKOV, A.A., kand.tekhn.nauk, retsenzent; SOLODOVNIKOV, V.V., prof., doktor tekhn.nauk, red.; VITENBERG, I.M., kand.tekhn.nauk, nauchnyy red.; MOLDAVER, A.I., kand.tekhn.nauk, nauchnyy red.; POLYAKOV, G.F., red.izd-va; AKIMOVA, A.G., red.izd-va; KONOVALOV, G.M., red.izd-va; TIKHONOV, A.Ya., tekhn. red.; SOKOLOVA, T.F., tekhn.red.

[Fundamentals of automatic control] Osnovy avtomaticheskogo regulirovaniia. Vol.2. [Elements of automatic conrol systems] Elementy sistem avtomaticheskogo regulirovaniia. Pt.1. [Sensing devices, amplifiers, and actuators] Chuvstvitel'nye, usilitel'nye i ispolnitel'nye elementy. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry. 1959. 722 p.
(Automatic control) (MIRA 12:4)
(Electronic apparatus and appliances) (Electronic calculating machines)

SOLODOVNIKOV, Vladimir Viktorovich; USKOV, Arkadiy Sergeyevich; ULANOV, G.M., doktor tekhn.; POLYAKOV, G.F., red.; CHERNOVA, Z.I., tekhn.red.

[Statistical analysis of control systems; statistical methods for determination of dynamic characteristics of automatic control systems during normal operation] Statisticheskii analiz ob"ektov regulirovaniia; statisticheskie metody opredeleniia dinamicheskikh kharakteristik ob"ektov avtomaticheskogo regulirovaniia v protsesse ikh normal'noi ekspluatatsii. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1960. 130 p. (MIRA 13:5)
(Automatic control) (Mathematical statistics)

STREYTS, Vladimir [Strejc, Vladimir], inzh.; BALDA, Milan, dotsent, inzh.; KRAMPERA, Miloslav, kand.tekhn.nauk, inzh.; BARBAROV, B.N.[translator]; ULANOV, G.M., doktor tekhn.nauk, red.; GOR'KOVA, A.A., vedushchiy red.; FEDOTOVA, I.G., tekhn.red.

[Use of automatic control in industry] Primenenie avtomaticheskogo regulirovaniia v promyshlennosti. Moskva, Gos.nauchno-tekhn.izd-vo neft. i gorno-toplivnoi lit-ry, 1960. 228 p. (MIRA 13:7)
(Automatic control)

ULANOV, G., doktor tekhn.nauk

"Automatic control and computing equipment." Reviewed by G.Ulanov. NTO 2 no.2:63-64 F '60. (MIRA 13:5)
(Automatic control) (Calculating machines)

16.7000

S/020/62/144/006/006/015
B108/B102

AUTHOR: Ulanov, G. M.

TITLE: Optimization of automatic control systems and theory of K(D) representation

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 144, no. 6, 1962, 1249-1250

TEXT: The optimization of automatic control systems, i.e., the finding of a function Φ_{opt} involving minimum difference between the desired and achieved values of the state of the system is considered. It is shown that such an optimum system (N. Wiener, Extrapolation, Interpolation and Smoothing of Stationary Time Series, N. Y. - London, 1949) can be got by imposing the condition of K(D) representation, $\Phi_{opt}(D)f(t) = 0$ with $\Phi_{opt} \neq 0$ and $f(t) \neq 0$ ($f(t)$ - perturbation). This representation was introduced by V. S. Kulebakin (UMN, 6, no. 5, 211 (1951); DAN, 68, no. 5 (1949); 77, no. 2 (1951)).

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S/020/62/144/006/006/015
B108/B102

Optimization of automatic control...

PRESENTED: January 16, 1962, by A. Yu. Ishlinskiy, Academician

SUBMITTED: December 25, 1961

Card 2/2

PETROV, B. N.; ULANOV, G. M. ; YEMEL'YANOV, S. V.

"Invariancy and Optimization in Automatic Systems with Nonflexible and Variable Structure.

Paper to be presented at the IFAC Congress held in Basel, Switzerland, 27 Aug to 4 Sep 63

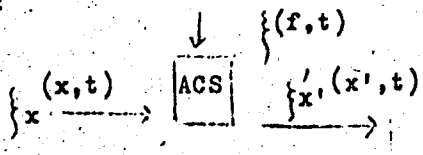
S/020/63/148/006/005/023
B112/B186

AUTHORS: Kochubiyevskiy, I. D., Ulanov, G. M.

TITLE: Information conditions for the invariance of linear automatic control systems

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 148, no. 6, 1963, 1268-1270

TEXT: This paper is an attempt to reduce information theory and the theory of statistical optimization to the determination of invariance conditions. An automatic control system (ACS) is symbolized by the following graph:



For such a system the equation of information reads

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Information conditions for the ...

$$\mathcal{H}_2'(\xi') = \mathcal{H}_1'(\xi) + \frac{1}{2\pi}\int_{\omega} \log|\Phi(j\omega)|^2 d\omega. \qquad (2)$$

Some consequences are derived from the condition of absolute invariance. In particular, it is shown that each Wiener optimum system can be determined by means of the theory of invariance. There is 1 figure.

PRESENTED: July 23, 1962, by B. N. Petrov, Academician

SUBMITTED: July 1, 1962

Card 2/2

ULANOV, G. M.

"Sur le calcul des champs potentiels par les machines electroniques."

report submitted for 4th Intl Cong, Cybernetics, Namur, Belgium, 21-25 Oct 64.

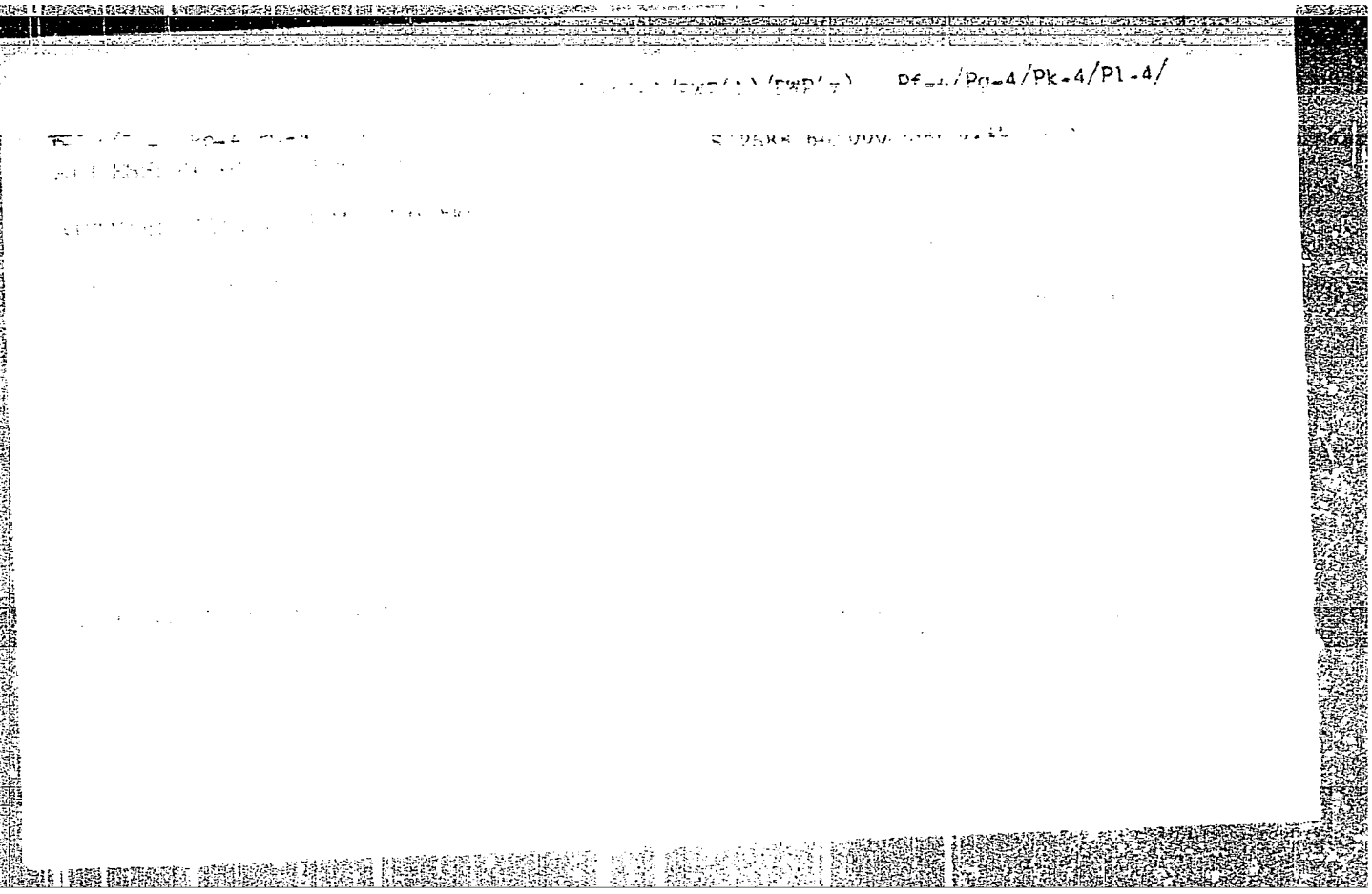
KULEBAKIN, V.S., akademik, otv. red.; PETROV, B.N., akademik, otv. red.; BODNER, V.A., doktor tekhn. nauk, red.; VORONOV, A.A., doktor tekhn. nauk, red.; IVAKHNENKO, A.G., red.; ISHLINSKIY, A.Yu., akademik, red.; KOSTYUK, O.M., kand. tekhn. nauk, red.; KRASSOV, I.M., kand. tekhn. nauk, red.; KUNTSEVICH, V.M., kand. tekhn. nauk, red.; KUKHTENKO,A.I., red.; RYABOV, B.A., doktor tekhn. nauk, red.; SIMONOV, N.I., doktor fiz.-mat. nauk, red.; ULANOV, G.M., doktor tekhn. nauk, red.; FEDOROV, S.M., kand. tekhn. nauk, red.; TSYPKIN, Ya.Z., doktor tekhn. nauk, red.; CHINAYEV, P.I., kand. tekhn. nauk, red.; KRUTOVA, I.N., kand. tekhn. nauk, red.; RUTKOVSKIY, V.Yu., kand. tekhn. nauk, red.

[Invariancy theory in automatic control systems; transactions] Teoriia invariantnosti v sistemakh avtomaticheskogo upravleniia; trudy. Moskva, Nauka, 1964. 503 p. (MIRA 18:2)

1. Vsesoyuznoye soveshchaniye po teorii invariantnosti i yeye primeneniyu v avtomaticheskikh ustroystvakh. 2d, Kiev, 1962. 2. Chlen-korrespondent AN Ukr.SSR (for Ivakhnenko, Kukhtenko).

topic MATH differential equation/Ordinary differential equation, K(D)

$$E(D)\,x(t) = X(D)\,f(t) \qquad (1)$$



ACCESSION NR: AT4045209

theory of [illegible] image [illegible]

his: 6 figures and 26 numbered formulas.

ASSOCIATION: [illegible]

SUBMITTED: [illegible]

KHRAMOY, A.V. [deceased]; MEYEROV, M.V.; AYZERMAN, M.A.; ULANOV, G.M.; TSYPKIN, Ya.Z.; FEL'DBAUM, A.A.; LERNER, A.Ya.; PUGACHEV, V.S.; IL'IN, V.A.; GAVRILOV, M.A.

Work of the Institute of Automatic and Remote Control on the development of the theory of automatic control during 1939-1964. Avtom. i telem. 25 no. 6:763-807 Je '64. (MIRA 17:7)

L 50185-65 EWT(d)/EWP(v)/EWP(k)/EWP(h)/EWP(l) Po-4/Pq-4/Pf-4/Pg-4/Pk-4/
P1-4 IJP(c) BC

AM5015052 Book Exploitation UR/ 57 43 B+1

IZVOISKIY, V.G.

Ageyev, V. M. (Engineer), and others [EDITORS ?]

Instrument manufacture and automatic control devices; handbook in five volumes. v. 4: Automatic control and automatic devices (Priborostroyeniye i sredstva avtomatiki; spravochnik v pyati tomakh. t. 4: Avtomaticheskoye regulirovaniye i sredstva avtomatiki). Moscow, Izd-vo "Mashinostroyeniye", 1965. 716 p. illus., biblio., index. Errata slip inserted. 24,700 copies printed.

TOPIC TAGS: automation, automatic control systems, automatic controller classification, static linearization, designing complex automation

PURPOSE AND COVERAGE: This is the fourth volume of the handbook: "Instrument manufacture and automatic control devices." It consists of two parts. Part one presents the fundamentals and definitions of the theory of automatic control, modern methods of mathematical analysis and synthesis of linear and nonlinear systems, and the methods of their dynamic computation. The second part of

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the volume contains descriptions of typical electrically, pneumatically, and hydraulically operated controllers, actuating mechanisms, and control systems. It also gives basic technical characteristics of electronic computational techniques applied in automation, and elucidates problems of the organization and planning of the most widely used systems of automatic control.

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AM5015052

17. Hydraulic and electrical-hydraulic means of automation and auxiliary devices -- 618-645
18. Designing systems for control and automatic regulation (A. B. Rodov) -- 645-694

SUB CODE: IE SUBMITTED: 05Feb65 NO REF SOV: 344

OTHER: 051

me
Card 4/4

L 25880-66 EWT(d)/EWP(v)/EWP(h)/EWP(k)/EWP(l)
ACC NR: AR6003994 SOURCE CODE: UR/0372/65/000/009/G005/G006

56
B

AUTHOR: Petrov, B. N.; Ulanov, G. M.; Yemel'yanov, S. V.

TITLE: Invariance and optimization systems in automatic control with rigid and variable structure

14

SOURCE: Ref. zh. Kibernetika, Abs. 9G34R

REF SOURCE: Tr. II Mezhdunar. kongressa Mezhdunar. federatsii po avtomat. upr., 1963. (T. 1). Teoriya nepreryvn. avtomat. sistem. M., 1965, 214-228. Diskus., 229

TOPIC TAGS: automatic control theory, optimal automatic control, correlation function, error correction, servomechanism

ABSTRACT: The authors consider the invariance of automatic regulation systems in the presence of perturbations which are specified specifically. The invariance conditions obtained on the bases of K(D) transforms are generalized to include the case of statistically specified perturbations. For stationary automatic control systems and stationary perturbations, the conditions of the K(D) transforms with respect to the perturbation turn out to be equivalent to the condition of K(D) transforms with respect to its correlation function. A new principle is proposed for constructing systems that are invariant with respect to continuous functions of the control signal, and ensure the absence of a statistical error. It is shown that when using an open cycle with variable structure it is possible to duplicate without statistical errors a broad class of functions of control action. The considered combined servomechanisms

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ACC NR: AR6003994

with variable structure of open cycle are not very sensitive to changes within a certain range of system parameters. Examples of the use of the proposed construction principle of invariant systems are presented. Eight illustrations. Bibliography of 14 titles. V. M. [Translation of abstract]

SUB CODE: 14, 09

Card 2/2

L 04700-67 EWT(d)/FSS-2/EEC(k)-2/EWP(1) IJP(c)

ACC NR: AP6032581 SOURCE CODE: UR/0030/66/000/009/0108/0109

AUTHOR: Ulanov, G. M. (Doctor of technical sciences)

ORG: none

TITLE: The development of the invariance theory and its applications

SOURCE: AN SSSR. Vestnik, no. 9, 1966, 108-109

TOPIC TAGS: electronic computer, electronic conference, information theory, automatic control theory

ABSTRACT: The Third All-Union Conference on Invariance Theory and its Applications in Automatic Control Systems organized by the USSR and Ukrainian Academies of Sciences, held in Kiev from 31 May to 4 June, was attended by some 500 scientists and engineers from the USSR, East Germany, Hungary, Poland, and Czechoslovakia. Papers were presented in the following sections: a) general problems of invariance theory; b) combined control systems; c) invariance in sampled-data control systems; d) invariance and sensitivity theory, invariant self-adjusting systems; e) nonlinear invariant systems; f) invariance in many-dimensional automatic control systems; g) application of invariance theory to moving objects; and h) industrial applications of invariant systems.

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The papers that were presented and the discussions showed that significant results were obtained in invariance theory. The methods of invariance theory were developed for many-dimensional continuous and sampled data systems (with the use of electronic digital computers). The conditions of controllability and observability in control systems were studied. The theory of many-dimensional invariant systems in the presence of random inputs was developed and a series of methods for synthesizing invariant multiloop systems were proposed. Definite progress was made in developing such trends as parametric invariance, sensitivity theory, and statistical dynamics. In particular, principles were developed for systems with double invariance.

The correlation between invariance theory and information theory was detected. The information characteristics of control processes were introduced on the basis of concepts of the entropy and recognition of processes. Invariance conditions in information form were obtained for the basic concepts of control regimes-stabilizing and reproducing, and equations for the compensation balance were derived in the form of entropy. The analogs of information theory were obtained for B. N. Petrov's two-channel principle and its features in common with the Shannon theorem concerning the direct and compensation information channels were indicated.

The studies of self-adjusting systems with the aid of the invariance principle as well as of nonlinear invariant systems with a variable structure were extended. The possibility of increasing the accuracy of systems and of improving their dynamic and operational characteristics in the presence of large external disturbances was shown. Studies important to applications were carried out in the invariance theory of systems with distributed parameters.

The essential difference between this conference and the previous ones is that an extensive analysis was made of designed and already operating automatic control systems. The effectiveness of the application of invariance principles to industry-wide automation and manufacturing of instruments was demonstrated. Realization of control in compound industrial complexes with the aid of electronic digital computers operating on the basis of compensating the disturbances was considered as an entirely new fact. The economic efficiency and reliability of such complex automation systems were estimated for one specific example (Slavyansk sodium plant).

Invariant control systems already operating in the petrochemical industry, metallurgy, construction, and transportation, and also in precision measuring and information systems were considered.

A great deal of attention was paid to papers dealing with development

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ACC NR: AP6032581

and realization of invariant gyroscopic systems and control systems in flight vehicles. Development of methods for designing gyroscopic systems insensitive to disturbances and for stabilizing and controlling flight vehicles in the presence of disturbances due to wind and under various external loads was considered as the central problem.

In the course of discussions, the question of realizability of invariance conditions in automatic control systems was considered. The necessity of developing invariance theory which could be applied to new fields of automation, including the theory of finite automata, was pointed out. [ATD PRESS: 5094-F]

SUB CODE: 09, 13 / SUBM DATE: none

Card 4/4 fv

Ulanov, G. N.

USSR/Processes and Equipment for Chemical Industries-- K-2
Control and measuring devices. Automatic regulation.

Abs Jour: Ref Zhur-Khimiya, No 3, 1957, 10652

Author : Petrov, B. N., Petrov, V. V., and Ulanov, G. N.
Inst : Academy of Sciences USSR
Title : The Conference on Automatic Regulation Theory

Orig Pub: Vestn. AN SSSR, 1956, No 8, 60-62

Abstract: No abstract.

Card 1/1

MALAKHOV, Yu.A., dotsent; SHOROKHOV, V.V., veter. vrach.; ULANOV, I.A., veter. vrach; TALISHEVSKAYA, M.Ye., veter. vrach.

Diagnosis and prophylaxis of leptospirosis in suckling pigs. Veterinariia 42 no.7:31-34 Jl '65. (MIRA 18:9)

1. Moskovskiy tekhnologicheskiy institut myasnoy i molochnoy promyshlennosti.

ULANOV, Kh.K.

(1) Veo

Meteorological Abst.
Vol. 5 No. 1
Jan. 1954
Part 2
Bibliography on
General Oceano-
graphic Meteorology

5A-136 ✓

551.554(26)

Ulanov, Kh. K., Izmenenie skorosti vetra s vysotoi nad morem. [The change of the velocity of wind with height above the sea.] *Akademiia Nauk SSSR, Izvestiia, Ser. Geogr. i Geofiz.*, No. 3:303–314, 1939. 3 figs., 7 refs., 3 eqs. In Russian; English summary, p. 313–314. Abstract in: *American Meteorological Society, Bulletin*, 23(2): 81, Feb. 1942. DLC—Wind velocity observed at heights of 30, 100, 200 and 300 cm above a raft and simultaneous humidity and temperature observations at 10 or 20, 50, 100 and 200 cm were carried out during the White Sea expedition of the State Hydrological Institute (U.S.S.R.) in the summer of 1938. Results show vertical distribution of velocities (30–300 cm above sea) not in agreement with Rossby theoretical curves, wind velocity distribution with height not dependent on stratification of temperature in layer 2–3 m above sea, vertical gradient of wind velocities increasing with increasing velocity, and vertical gradient above 3–4 m decreasing with increasing height. *Subject Headings:* 1. Micrometeorology 2. Marine meteorology 3. Wind profiles 4. White Sea.

ULANOV, KH. K.

PA 246T80

USSR/Geophysics - Oceanography Mar/Apr 53

"Review of V.A. Snezhinskiy's Book 'Practical Oceanography,'" Kh. K. Ulanov (reviewer)

"Iz Ak Nauk SSSR, Ser Geograf" No 2, pp 59, 60

Favorable review of "Prakticheskaya Okeanografiya," published in 1951 by the Hydromet Press; 600 pp. States that author's work is a valuable contribution to the study and future use of oceans by the USSR.

246T80

ULANOV, Kh.K.

Observations of sea disturbances. Meteor. i gidrol. no.3:58-59 Mr '53. (MLRA 8:9)

1. Rizhskaya geofizicheskaya observatoriya.
(Waves) (Ocean)

AVERKIYEV, M.S. [author]; ULANOV, Kh.K. [reviewer]; SAMOYLENKOV, V.S. [redaktor].

"Meteorology." M.S.Averkiev. Reviewed by Kh.K.Ulanov. Vest.Mosk.un. 8 no.5:139-140 My '53. (MLRA 6:8)

1. Rizhskaya Geofizicheskaya observatoriya (for Ulanov).
(Meteorology) (Averkiev, M.S.)

SOV/10-59-5-14/25

AUTHOR: Ulanov, Kh.K. and Neglyad, K.V.

TITLE: On the Classification and Denomination of the Science of the Seas

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya geograficheskaya, 1959, Nr 5, pp 98-100 (USSR)

ABSTRACT: At present there is no generally accepted classification and denomination of the science for the study of the World Ocean. The author proposes the name of "Oceanology" for this science. Up to now many names are used, such as oceanography, oceanology, sea hydrology, sea hydrometeorology, physics of the sea, or even (especially in foreign scientific literature) hydrography. The author cites the following scientists who introduced one of the above names: Yu.M. Shokal'skiy, G.R. Zhukovskiy, Yu.V. Istoshin, V.S. Nazarov, A.M. Muromtsev, V.A. Snezhinskiy, N.N. Zubov, A.P. Loydis, L.A. Zenkevich, N.V. Malinovskiy, V.G. Kort, B.A.

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On the Classification and Denomination of the Science of the Seas

Shipov, I.B. Shpindler, B.P. Orlov, A.K. Leonov, N.A. Belinskiy, M.V. Klenova, A.V. Ogiyevskiy, and B.A. Apollov. According to the author "Oceanology" is a science which studies the substance of all phenomena and processes occurring in oceans and seas, the regular connection among them, their reaction in specific physical and geographical conditions and the possibility of their forecast. There are 14 Soviet references.

ULANOV, Kh.K.

Anomalies in water temperature in the eastern part of the central Caspian Sea. Izv. AN Azerb. SSR. Ser. geol.-geog. nauk no.4:79-92 '60. (MIRA 14:1)

(Caspian Sea--Ocean temperature)

ULANOV, Kh.K.

Estimating the heat of continental runoff. Meteor.i gidrol. no.8:43-44 Ag 60. (MIRA 13:8)
(Ocean temperature) (Runoff)

ULANOV, Kh.K.

Water loss due to mechanical evaporation from the surface of the Caspian Sea. Dokl. AN SSSR 135 no.3:584-586 N '60. (MIRA 13:12)

1. Institut geografii Akademii nauk AzerbSSR. Predstavleno akad. N.M.Strakhovym.
(Caspian Sea--Evaporation)

ULANOV, Kh.K.

A complete temperature cycle of the middle Caspian. Trudy Inst. geog. AN Azerb. SSR 10:46-63 '61. (MIRA 14:12)
(Caspian Sea--Ocean temperature)

ULANOV, Kh.K.

Rise and flow phenomena and the water temperature anomaly at the east coast of the middle Caspian. Okeanologiia 2 no.4:614-626 '62. (MIRA 15:7)

(Caspian Sea--Temperature)

ULANOV, Kh.K.

Water exchange between the central and southern parts of the Caspian Sea. Okeanologiia 3 no.3:431-440 '63. (MIRA 16:8)

1. Institut geografii AN Azerbaydzhanskoy SSR, Baku.
(Caspian Sea--Hydrology)

ULANOV, Kh.K.

Level increment and the water budget of the Caspian Sea. Dokl. AN SSSR 157 no.1:99-100 Jl '64 (MIRA 17:8)

1. Predstavleno akademikom N.M.Strakhovym

ULANOV, Kh.K.

Stream flow in the Caspian Sea in 1946-1961. Izv.AN Azerb.SSR. Ser.geol.-geog.nauk no.1:102-109 '65.

(MIRA 18:8)

ULANOV, Kh.K.

Subsurface drainage into the Caspian Sea and the seepage of its water to the bottom and coasts. Dokl. AN SSSR 162 no.1:166-168 My '65. (MIRA 18:5)

1. Submitted December 22, 1964.

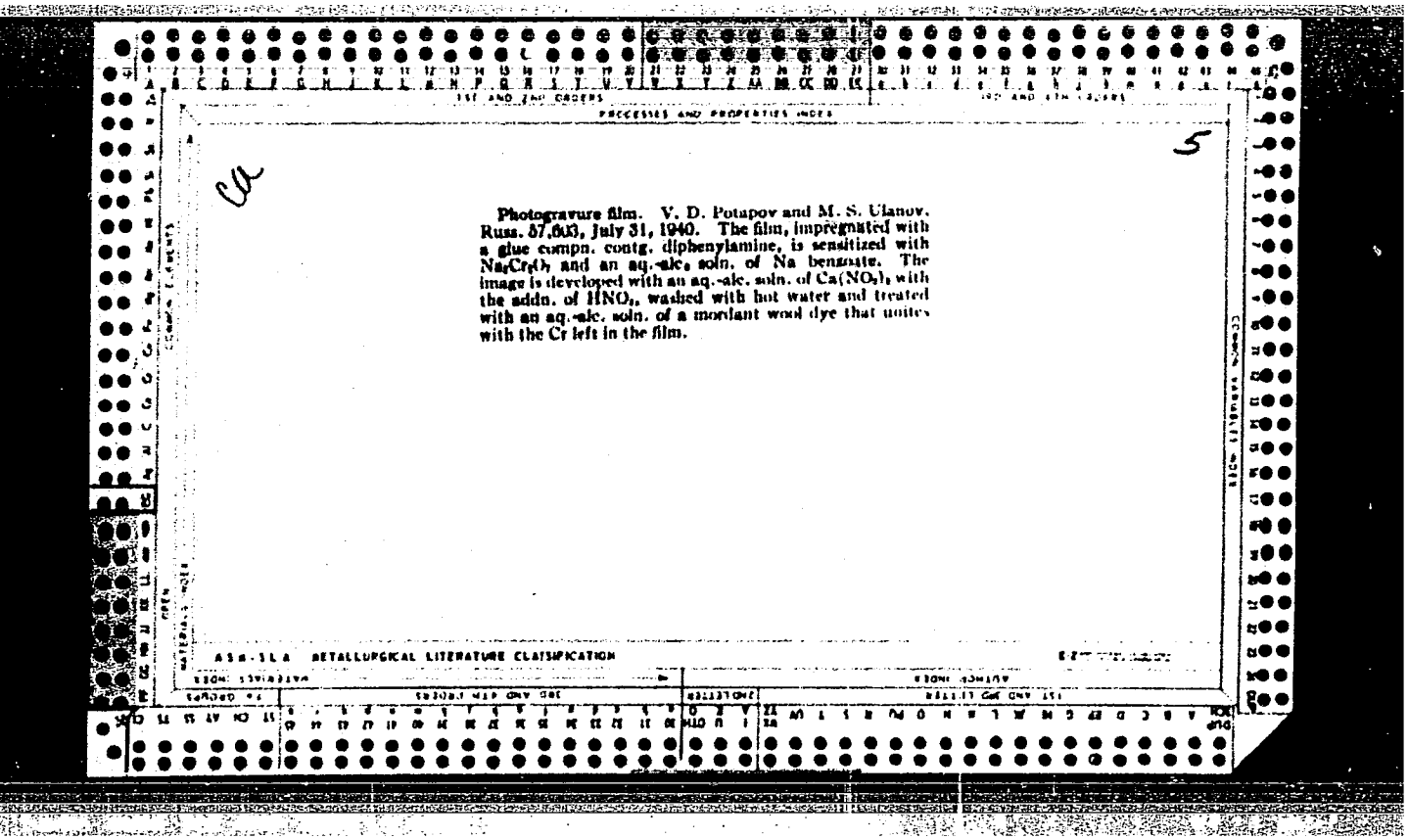
ULANOV, L., kapitan

People of a heroic deed. Starsh.-serzh. no.10:34 O '61.
(MIRA 15:2)

(Russia--Relations (Military) with East Germany)

IVANOV, B.; ULANOV, M.

Mandolin quintet played on one instrument. IUn. tekh. 5 no. 12:59-63 D '60. (MIRA 14:1)
(Musical instruments, Electronic)



PROCESSES AND PROPERTIES INDEX

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Photogravure film. V. D. Potapov and M. S. Ulanov. Russ. 57,603, July 31, 1940. The film, impregnated with a glue compn. contg. diphenylamine, is sensitized with $Na_2Cr_2O_7$ and an aq.-alc. soln. of Na benzoate. The image is developed with an aq.-alc. soln. of $Ca(NO_3)_2$ with the addn. of HNO_3, washed with hot water and treated with an aq.-alc. soln. of a mordant wool dye that unites with the Cr left in the film.

ASM-TLA METALLURGICAL LITERATURE CLASSIFICATION

ULANOV, N.A.

Innovators of the Petropavlovsk Leather Factory. Kozh.-obuv.prom. 3 no.11:36-37 N '61. (MIRA 15:1)
(Kazakhstan--Leather industry--Technological innovations)

ULANOV, N.N.; DARIYEV, A.D.

Potentiometric determinion of the molecular weights of organic salts and acids. Krat.soob. BKNII no.3:56-60 '62. (MIRA 16:5)
(Potentiometric analysis) (Molecular weights) (Organic compounds)

UL'ANOV, P.L.

Divergence of Fourier's series. Usp.mat.nauk 12 no.3:75-132 My-Je '57. (MIRA 10:10)
(Fourier's series)

ULANOV, R.N., inzhener; FOKHT, L.G., inzhener.

Self-propelled carts for construction work. Mov.tekh.i pered.op. v stroi. 18 no.6:14-16 Je '56. (MLRA 9:8)
(Industrial power trucks)

ULANOV, V.

MARDANOV, V.; ULANOV [redacted]

Universal machine for the apartment house managements. Zhil.-kom. khoz. 7 no.5:12-13 '57. (MIRA 10:6)

1. Nachal'nik tekhnicheskogo otdela Leningradskogo zhilishchnogo upravleniya (for Mardanov). 2. Starshiy inzhener nauchno-issledovatel'skogo instituta organizatsii i mekhanizatsii stroitel'stva. (for Ulanov).

(Motortrucks)

ULANOV, B., konstruktor.

"Motorized ants". Za rul. 15 no.5:19 My '57. (MLRA 10:6)
(Motorcycles)

MAHDANOV, V.V., inzh.; ULANOV, R.N., inzh.

Mechanization of cleaning of apartment-house premises in Leningrad. Gor. khoz.Mosk. 31 no.5:27-29 My '57. (MIRA 12:3)
(Leningrad--Street cleaning machinery)

ULANOV, Rem Nikolayevich; LEVCHENKO, Ya.V., inzh., red.; VASIL'YEV, Yu.A., red. izd-va; GVIRTS, V.L., tekhn. red.

[Increasing the mobility of the "Pioneer" jib crane] Povyshenie mobil'nosti strelovykh kranov tipa "Pioner." Leningrad, 1961. 8 p. (Leningr. Dom nauchno-tekhnicheskoi propagandy. Opyt novatorov. Seriia: Stroitel'naia promyshlennost', no.20) (MIRA 14:12)

(Cranes, derricks, etc.)

LANTSOV, Vladimir Anatol'yevich; ULANOV, Rem Nikolayevich; LEVCHENKO, L.V., red.; FOMICHEV, A.G., red.izd-va; BOL'SHAKOV, V.A., tekhn. red.

[Hiched construction cranes]Pritsepnye stroitel'nye krany. Leningrad, 1961. 20 p. (Leningradskii dom nauchno-tekhnicheskoi propagandy. Obmen peredovym opytom. Seriia: Stroitel'naia promyshlennost', no.28) (MIRA 16:3)
(Cranes, derricks, etc.)

ULANOV, R.N.; LANTSOV, V.A., starshiy nauchnyy sotr.; AL'PEROVICH, A.I.; PFUL', B.Ya., inzh., red.; KODABASHEVA, R.S., inzh., red.; YEFREMENKO, V.P., inzh., red.

[Hoists used in construction] Stroitel'nye pod"emniki; sbornik opisanii ratsionalizatorskikh predlozhenii. Moskva, Gos. izd-vo lit-ry po stroit., arkhit. i stroit. materialam, 1961. 34 p. (MIRA 14:11)

1. Akademiya stroitel'stva i arkhitektury SSSR. Institut organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu. Byuro tekhnicheskoy informatsii. 2. Glavnyy konstruktor liteyno-mekhanichskogo zavoda Leningradskogo upravleniya zhilishchnym khozyaystvom (for Ulanov). 3. Leningradskiy nauchno-issledovatel'skiy institut Akademii kommunal'nogo khozyaystva im. K.D.Pamfilova (for Lantsov). 4. Glavnyy inzhener TSentral'nogo remontno-mekhanicheskogo zavoda Ispolnitel'nogo komiteta Moskovskogo gorodskogo soveta deputatov trudyashchikhsya (for Al'perovich). (Hoisting machinery)

ULANOV, R.

TUM-59 hauling and street cleaning machine. Zhil.-kom. khoz. 11 no.8:29 Ag '61. (MIRA 14:9)

1. Glavnyy konstruktor liteyno-mekhanicheskogo zavoda Lenzhilupravleniya, Leningrad.
(Street cleaning machinery)

ULANOV, R.N., inzh.; KASITSYNA, K.N., inzh., red.

[Motor trolleys and tractor trucks for transporting building materials; practices of the Casting and Machine Plant of the Housing Administration of Leningrad City Executive Committee] Mototachki i tiagachi dlia transportirovaniia stroitel'nykh materialov; iz opyta Liteino-mekhanicheskogo zavoda Zhilishchnogo upravleniia Leningradskogo rispolkoma. Moskva, Gosstroiizdat, 1962. 14 p. (MIRA 17:4)

1. Moscow. Nauchno-issledovatel'skiy institut organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu.
2. Glavnyy konstruktor Liteyno-mekhanicheskogo zavodazhilishnogo upravleniya Leningradskogo gorodskogo ispolnitel'nogo komiteta (for Ulanov).

ULANOV, Rem Nikolayevich; LEVCHENKO, Ya.V., red.; KLOPOVA, T.B., red. izd-va; BELOGUROVA, I.A., tekhn. red.

[Selection and use of various self-propelled chassis]Vybor i ispol'zovanie razlichnykh samokhodnykh shassi. Leningrad, 1962. 20 p. (Leningradskii dom nauchno-tekhnicheskoi propagandy. Obmen peredovym opytom. Seriia: Stroitel'naia promyshlenost', no.9) (MIRA 15:10)
(Motor vehicles)

ULANOV, R.N.

Small snowplows. Gor. khoz. Mosk. 36 no.10:29-31 O '62.
(MIRA 15:12)

1. Zhilishchnoye upravleniye ispolnitel'nogo komiteta Leningradskogo gorodskogo soveta.
(Snowplows)

ULANOV, S.A.,
S. V. ARBUZOV, Russ. 65,905, Feb. 28, 1946.

ULANOV, S.A., inzh.

Utilization of skins in manufacturing Russian leather. Leg.prom. 18 no.11:16-17 N '58. (MIRA 11:12)
(Tanning)

CHERNOV, N.V., doktor tekhn. nauk, prof.; SHESTAKOVA, I.S., prof., doktor tekhn. nauk; GOLOVTEYEVA, A.A., kand. tekhn. nauk, dotsent; ULANOV, S.A., inzh.

Effect of the bouquet and visosity of the tanning solutions on tanning kinetics. Nauch. trudy MTILP no.24:21-29 '62. (MIRA 16:7)

1. Kafedra tekhnologii kozhi i mekha Moskovskogo tekhnologicheskogo instituta legkoy promyshlennosti.
(Tanning)

ULANOV, S.A.

Apparatuses and boiling methods for the manufacture of tanning extracts. Kozh.-obuv.prom. 3 no.1:23-25 Ja '61. (MIRA 14:5)
(Tanning materials)

SHAPIRO, A.Ye., kand.tekhn.nauk; ULANOV, S.A., inzh.

Depilation without painting in the manufacture of chrome leather from hides. Kozh.-obuv.prom. 4 no.3:29-32 Mr '62. (MIRA 15:5)

(Leather)

ULANOV, S.A., inzh.

Mechanical flotation method of depilation. Kozh.-obuv.prom. 4 no.8:25-27 Ag '62. (MIRA 15:8)
(Hides and skins)

ULANOV, S. A., inzh.; CHERNOV, N. V., doktor tekhn. nauk, prof.;
SHESTAKOVA, I. S., doktor tekhn. nauk, prof.

Viscosity of the solutions of vegetable and synthetic tanning materials. Kozh. obuv. prom. 4 no.10:19-22 O '62. (MIRA 15:10)

(Tanning materials)

ULANOV, S.A.

"Efficient utilization of raw materials with the porosity defect in shoe manufacture." Kozh.-obuv. prom. 6 no.4:17 Ap'64. (MIRA 17:5)

ULANOV, S.A.

New analysis method in leather manufacture. Kozh.-obuv. prom. 6 no.8: 31-34 Ag '64. (MIRA 17:10)

ULANOV, V

MARDANOV, V.; ULANOV, V.

Watering carts and street sweepers for cleaning sidewalks and yards. Zhil.-kom.khoz. 8 no.1:23-24 '58. (MIRA 11:1)

1.Nachal'nik tekhn.otdela Lenzhilupravleniya (for Mardanov)
2.Glavnyy konstruktor tsekha novoy tekhniki Liteyno-mekhanicheskogo zavoda Lenzhilupravleniya (for Ulanov)
(Street cleaning)

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Title : Biological activity of alpha-aminophosphinic acids

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Abstract : The biological activity of alpha-aminophosphinic acids (toxic when in large concentrations), is discussed. The biological activity of these acids is best expressed in the inhibition of virus multiplication in the mosaic disease of tobacco. The effect of these acids and glycol on the titer of influenza virus in growing chicken embryos was investigated and the results are described. Eleven references: 7-USSR; 2-USA; 1-French and 1-German (1930-1953). Tables.

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